

## **IN THE CLAIMS**

1. (Currently Amended) A method for detecting abnormal traffic at a network level using a statistical analysis, the method comprising the steps of:

- a) gathering local traffic data from each network device and integrating a plurality of the local traffic data to generate traffic data in the network level by a single traffic sensing module;
- b) extracting a characteristic traffic data based on the traffic data in the network level;
- c) comparing the characteristic traffic data with a characteristic traffic data profile resulting from statistical computations and representing normal traffic, and determining whether there is abnormal traffic in the network; and
- d) updating the characteristic traffic data profile using the characteristic traffic data if there is no abnormal traffic in the network, analyzing a volume amount of the abnormal traffic and monitoring the abnormal traffic if there is abnormal traffic in the network; and
- e) transmitting the analysis result of the seriousness of the abnormal traffic to an abnormal traffic processing system to detect abnormal traffic without operation of a network manager, and processing the abnormal traffic to prevent a network failure.

2. (Original) The method as recited in claim 1, wherein the characteristic traffic data includes:

information on traffic assigned to an application port which is selected according to an application service;

information on traffic of which packet size is identical; and

information on traffic of which the number of source-destination pairs, which represents the number of source addresses of the traffic having the same target address.

3. (Cancelled)

4. (Currently Amended) A computer-readable recording medium for storing a program that implements a method for detecting abnormal traffic at a network level using a statistical analysis, the method comprising the steps of:

- a) gathering local traffic data from each network device and integrating a plurality of the local traffic data to generate traffic data in the network level by a single traffic sensing module;
- b) extracting a characteristic traffic data based on the traffic data in the network level;
- c) comparing the characteristic traffic data with a characteristic traffic data profile resulting from statistical computations, and determining whether there is abnormal traffic in the network; and
- d) updating the characteristic traffic data profile using the characteristic traffic data if there is no abnormal traffic in the network, analyzing a volume amount of the abnormal traffic and monitoring the abnormal traffic if there is abnormal traffic in the network; and
- e) transmitting the analysis result of the seriousness of the abnormal traffic to an abnormal traffic processing system to detect abnormal traffic without operation of a network manager, and processing the abnormal traffic to prevent a network failure.